

<b>Academic subject: Food chemistry</b>			
<b>Degree Class:</b> LM-86		<b>Degree Course:</b> Safety and Health of Food of Animal Origin	
		<b>Academic Year:</b> 2020/2021	
		<b>Kind of class:</b> mandatory	<b>Year:</b> I
			<b>Period:</b> I semester
			<b>ECTS: 6</b> divided into <b>ECTS lessons: 6</b> <b>ECTS</b> <b>exe/lab/tutor: 0</b>
<b>Time management, hours, in-class study hours, out-of-class study hours</b> lesson: 60    exe/lab/tutor: 0    in-class study: 0    out-of-class study: 90			
<b>Language:</b> Italian	<b>Compulsory Attendance:</b> no		
<b>Subject Teacher:</b> Filomena Corbo	<b>Tel:</b> 0805442746 <b>e-mail:</b> filomena.corbo@uniba.it	<b>Office:</b> Department of Pharmacy-Drug Science  Room 432    Floor 3	<b>Office days and hours:</b> Every day by appointment via email
<b>Prerequisites: The student must have knowledge of General and Inorganic Chemistry, Organic Chemistry and Biochemistry.</b>			
<b>Educational objectives:</b> The course allows to acquire technical language and basic notions on food in general and on those with health properties in particular; it provides notions on the composition of the main foods also as a function of the biological activity of their various constituents. The lessons deal in detail with the different foods, in relation to their composition and health aspects, also considering the possible transformations induced by technological treatments and conservation.			
<b>Expected learning outcomes (according to Dublin Descriptors)</b>	<b>Knowledge and understanding:</b> Acquisition of contents relating to the main macro and micronutrients making up food.		
	<b>Applying knowledge and understanding:</b> Applying <b>knowledge</b> about contents relating to the main macro and micronutrients making up food to different fields		
	<b>Making judgements:</b> Ability to recognize the nutritional and health characteristics of foods from the evaluation of their composition.		
	<b>Communication:</b> Written elaboration of the chemical structures of food components, use of appropriate chemical language, reading of scientific articles in the sector in English.		
	<b>Lifelong learning skills:</b> Study methodology for the purpose of lifelong updating on the subject studied		
<b>Course program</b> Foods, Nutraceuticals and functional foods. Definitions. Classification. Macronutrients. Carbohydrates. Monosaccharides, disaccharides and polysaccharides of nutritional interest. Starches. Dietary fiber. Sweeteners. Related topics: Cereals, Bread, pasta. Lipids. Essential fatty acids: PUFA. Lecithins.			

Conjugated linolenic acids. Stability and degradation. ALE (advanced lipoperoxidation endproducts). Related topics: Olive oil, hemp oil. Amino acids and proteins. Stability. Biological value of proteins. Endogenous amino acids and proteins with antioxidant and detoxifying action and from food sources (carnitine, nutraceuticals from liliaceae and isothiocyanates from cruciferous trees). Transformations with heating and cooking (Amadori reaction). AGE (advanced glycation endproducts). Related topics: milk. Vitamins of isoprene origin. Biogenesis. Vitamins A, carotenoids, lycopene. Vitamins D (steroids: classification and nomenclature; provitamins and bioactivation). Phytosterols. Tocopherols and tocotrienols. Vitamins K. Water-soluble vitamins. Complex B. Pantothenic acid. Biotin. Phenols and polyphenols. Phenols, catechins, resveratrol, bioflavonoids, anthocyanins, isoflavones. Cocoa. Nervine drinks (tea, coffee). Probiotics, prebiotics, synbiotics. (power point lesson material). Contamination of food. Mycotoxins.  
Food processing and storage.

**Teaching methods:**

Use of web devices (power point)

**Auxiliary teaching:**

Power point material provided by the teacher

Laboratory teaching aimed at reading and interpreting indexed scientific articles and scientific articles

**Assessment methods:**

*Ongoing tests: NO*

*Self-assessment test: NO*

*Practical test: NO*

*Final exam: Oral*

*The exam consists of an oral test on the topics covered in the course.*

*The evaluation criteria are:*

- clarity of presentation*
- use of appropriate terminology*
- personal study of the topics covered*
- contextualization of the course topics to one's academic career*

**Bibliography:**

Mannina L; Daglia M.; Ritieni A. “ La chimica e gli alimenti: nutrienti e aspetti nutraceutici” Ed CEA Casa editrice Ambrosiana

Cappelli, P.; Vannucchi, V. “Principi di chimica degli alimenti”. Ed. Zanichelli (Bologna)